



SHORTENING  
PROJECT DELIVERY

## CONSTRUCTION MANAGER/ GENERAL CONTRACTOR

For transportation projects with sensitive schedules and potential constructability challenges that require special qualifications and extraordinary contractor cooperation, such as those in busy urban areas, the Construction Manager/General Contractor (CM/GC) delivery method provides many benefits. Other projects that are a good fit for the CM/GC method are those that have public involvement or include right-of-way or utility issues that could affect the overall schedule.

By getting the contractor involved early in the planning and design processes, project owners have the opportunity to incorporate a contractor's perspective into planning and design decisions, introduce innovations, improve the design quality and resolve potential third party issues. This allows them to deliver projects that reduce costly change orders, decrease risk, optimize the construction schedule and minimize impact to the traveling public.

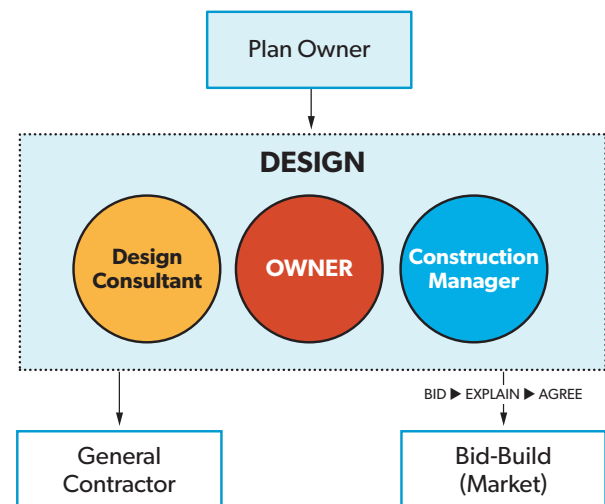
### INNOVATION DESCRIPTION

The CM/GC project delivery method consists of two phases—design and construction.

When the owner considers the design to be complete, the construction manager then has an opportunity to bid on the project based on the completed design and schedule. If the owner, designer and independent cost estimator agree that the contractor has submitted a fair price, the owner issues a construction contract and the construction manager then becomes the general contractor. The contractor acts as the consultant during the design process and can offer constructability and pricing feedback on design options and can identify risks based on the contractor's established means and methods. As noted earlier, this process also allows the owner to be an active participant during the design process and make informed decisions on design options based on the contractor's expertise.

### BENEFITS

- **Foster innovation.** The collaborative process encourages both contractor and project owner to look



at all options including using innovative techniques or approaches that reduce time and cost — for example, use of Self-Propelled Modular Bridge Transporter (SPMT) bridge moves and slide-in bridge technologies.

- **Reduce risk.** Contractor feedback during the design phase can reduce project costs because the owner is able to understand and mitigate risks identified early in project development. Any risk mitigation savings identified during the design phase accrue to the owner in a CM/GC arrangement.
- **Improve design quality.** The contractor is able to review the designs and provide feedback, answer designer questions and provide changes. By including the contractor review, the designer can produce better designs that reduce issues in construction and prevent change orders that can lead to project overruns.



- ▶ **Improve cost control.** Value Engineering is a natural part of CM/GC during the design process. This allows for the contractor's input during design so the owner can obtain reliable cost data for any design alternative being considered. This allows the owner to consider the budget and make more informed decisions about which alternatives offer the greatest cost-benefit.
- ▶ **Optimize construction schedules.** The CM/GC process allows the contractor to begin planning the construction schedule during the design phase. This way, the team can view how construction will impact traffic and adjust the construction schedule accordingly. CM/GC also enables the team to determine right-of-way and utilities issues on the critical path during design and give greater focus to those that affect the overall schedule.

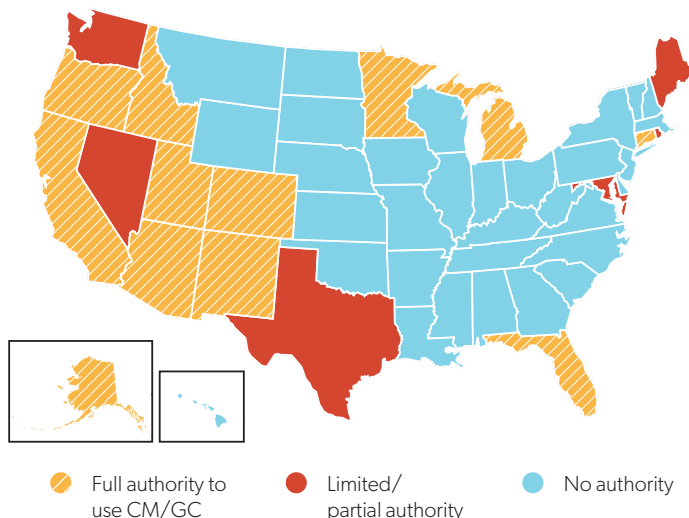
## CURRENT STATE OF THE PRACTICE

With the passage of MAP-21, SEP-14 approval is no longer required for State DOTs to use CM/GC so long as their state statutes allow for it. The FHWA does not presently have regulations concerning the CM/GC project delivery method.

## SUPPORT AND AVAILABLE TOOLS

If you're interested in getting started with CM/GC in your state and need to better understand the CM/GC technical issues and implementation process, here are some resources to help you get started:

- ▶ FHWA CM/GC Project Delivery Program Guide, <http://www.fhwa.dot.gov/construction/cqit/cm.cfm>
- ▶ NCHRP SYNTHESIS 402 - Construction Manager-at-Risk Project Delivery for Highway Programs, [http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp\\_syn\\_402.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_syn_402.pdf)
- ▶ Boston CM/GC Peer Exchange Presentation Materials – May 2012, [https://www.t2events.ce.ufl.edu/events/CMGC\\_Peer\\_Exchange\\_-\\_Boston%2C\\_MA.asp](https://www.t2events.ce.ufl.edu/events/CMGC_Peer_Exchange_-_Boston%2C_MA.asp)
- ▶ 2011 Utah Dot Annual Report CM/GC Report, <http://www.udot.utah.gov/main/uconowner.gf?n=8808304515548405>
- ▶ Sample Utah DOT CM/GC Documents, <http://www.udot.utah.gov/main/f?p=100:pg:0:::1:T,V:1871>
- ▶ Sample Oregon DOT CM/GC Documents, [http://www.oregon.gov/ODOT/HWY/MPB/WRB.shtml#CM\\_GC\\_Procurement\\_Documents](http://www.oregon.gov/ODOT/HWY/MPB/WRB.shtml#CM_GC_Procurement_Documents)
- ▶ Sample CM/GC State Legislation (Arizona, Utah, Oregon, & State of Washington), [http://www.fhwa.dot.gov/construction/contracts/cmgc\\_statutes.cfm](http://www.fhwa.dot.gov/construction/contracts/cmgc_statutes.cfm)



**FIGURE 1:** Use of Construction Manager/General Contractor (or Construction Manager At-Risk); State Authority, Number of Completed Projects; FHWA Division Office Survey 2012

For additional information, please contact:

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*Every Day Counts (EDC), a State-based initiative of FHWA's Center for Accelerating Innovation, works with State, local and private sector partners to encourage the adoption of proven technologies and innovations aimed at shortening and enhancing project delivery*

 U.S. Department of Transportation  
Federal Highway Administration